Notes on South Australian Marine Mollusca, with Descriptions of New Species.—Part IV.

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Plates VIII. to X.

Family PATELLIDÆ, Carpenter.

Genus Patella, Linné.

Helcioniscus tramoserica, Martyn.

Patella tramoserica, Martyn, Univ. Conch., t. 16; Reeve, Conch. Icon., Mon. Patella, 1854, pl. xiii. f. 27; Adcock, Hand-list of Aquatic Moll., S. Aust., 1893, No. 392; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, xv. (n. s.), p. 191; *Helcioniscus tramosericus*, Martyn, Pilsbry., Tryon's Man. Conch., 1891, xiii., p. 142, pl. lxx., figs. 49, 50, 51, 52; Tate and May, Proc. Linn. Soc., N.S.W., 1901, p., 411.

Patella diemenensis, Philippi, Zeit. f. Malak, 1848, p. 162: type locality, Hobart; Pilsbry., Tryon's Man. Conch., xiii., p. 155.

Patella variegata, Reeve, Conch. Icon., 1854, Mon. Patella, pl. 16, f. 36, *a*, *b*, and *c*.

Patella antipodum, E. A. Smith, Voy. Erebus and Terror, Moll., p. 4, t. 1, f. 25, 1874, teste Pilsbry., *op. cit.*, p. 142.

Pritchard and Gatliff, *loc. cit.*, give *Helcioniscus melanostomus*, Pilsbry., Tryon's Man. Conch., xiii., 1891, p. 151, pl. xxxii., figs. 67 and 69 as a synonym.

This is a very variable shell. The large yellowish or rose-tinged shell figured by Reeve is comparatively rare in South Australia. Some are wholly salmon-coloured without any rays, others have dark chestnut rays. There is a horn-coloured variety with yellow-brown rays, and fine black lines, mostly in pairs in some of the interspaces. The black lines may be quite wide, and be in all the interspaces, and they may be interrupted or reticulate. The variety *variegata* of Reeve is more common; of a yellowish tint, rather translucent, with more or less interrupted dark purplish rays and very iridescent interior. These merge into a larger, more hemispherical form of stouter build, recalling Philippi's description of *P. diemenensis*, which seems to be our usual variety, and these into one with very broad, dark, liver-coloured rays separated by narrow bands of white.

Helcioniscus illibrata, *spec. nov.* Pl. x., figs. 6 to 14.

Shell minute, rather solid, conical: apex blunt, scarcely anterior; posterior slope scarcely convex, anterior scarcely concave; no radial sculpture; some irregular growth lines.

Base not flat, sides concave; so that the shell rests on its ends; subcircular; margin simple. Apex pinkish, ground colour faint brownish pink. From just below the pink apex radiate four broad opaque white bands, which increase to eight.

Dim.—Height, 2·6 mm.; major diam., 2·7 mm.; minor diam., 2·25 mm.

Hab.—Spencer Gulf, dredged alive, depth unknown, 7 individuals.

The radula contains about 36 consecutive segments, each consisting of two marginals, two outer laterals, and one inner lateral. 2(2·1·0·1·2)2. The marginals are thin and colourless, with a long stem (fig. 8), the extremity expanded laterally in a central direction (fig. 11), and reflected (fig. 10); the outer one the larger and including the inner (fig. 11). The outer laterals are short, stout, very closely approximated, hooked at the end, and brown (figs. 8, 11, 14). The inner laterals are less approximate, much longer (figs. 8, 11, 13), articulate at their base with the outer laterals (figs. 9, 12), but are separable from them.

Obs.—I have called it a *Helcioniscus*. The dentition does not correspond with that of any of the *Patellidæ*, which seem all to have three marginals, whereas this appears to have only two. But for this its dentition is that of *Helcioniscus*, 3(2·1·0·1·2·)3. and *Patellina;* but its branchial cordon is incomplete, and this would place it in *Helcioniscus*.

The figures are not all drawn from the same radula, but from three radulæ obtained from three individuals of apparently the same species.

Patella ustulata, Reeve.

Patella ustulata, Rve., Conch. Icon., 1855, vol. viii., pl. xxxi., f. 88, *a*, *b*; Ten.-Woods, P.R.S., Tasm., 1877 for 1876, p. 49; also 1878 for 1877, p. 45; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. 26, pt. 3, p. 411; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), p. 193; *P. (scutellastra) ustulata*, Rve., Pilsbry., in Tryon's Man. Conch., vol. xiii., p. 101, pl. xxii., figs. 11, 12.

Patella tasmanica, Ten.-Woods, Proc. Royal Soc., Tasm., 1876 for 1875, p. 157; also 1877 for 1876, p. 49; 1878 for 1877, p. 45; Tate and May, *op. cit.*, p. 411; Pritchard and Gatliff, *op. cit.*, p. 193.

This species is not found in Adcock's Handlist, and was only represented by a few poor specimens among our collectors until recognized by me at Port MacDonnell in January of this year, when very many somewhat beach-worn specimens were found.

Patella aculeata, Reeve.

Patella aculeata, Rve., Conch. Icon., 1855, vol. viii., pl. xxxii., f. 90; Angas, Proc. Zool. Soc., 1867, p. 221, No. 224; Ten.-Woods, Proc. Roy. Soc., Tasm., 1878 for 1877, p. 45; Brazier, Proc. Linn. Soc., N.S.W., 1883, p. 224; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., pt. 3, p. 410; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, xv. (n. s.), pt. 2, p. 193; *P. (scutellastra) aculeata*, Rve., Pilsbry., Man. Conch., vol. xiii., p. 100, pl. 25, figs. 20, 21, pl. lxii., figs. 71 to 75.

P. squamifera, Reeve, Conch. Icon., pl. xxxii., f. 94; Angas, *loc. cit.*, No. 225; Pritchard and Gatliff, *loc. cit*, p. 193.

Found in numbers on the rocks at Port MacDonnell. As Tenison-Woods says of *P. ustulata*, Reeve, it lives "below low water" on the rocks on the ocean shore; it is commonly covered with nullipore, is very liable to erosion when old, and then is almost indistinguishable during life from *Acmæa alticostata*, Angas. It may, if uneroded and not hidden, be almost black over the ribs and interspaces, or in the interspaces only, or in broken concentric rings, or of a wholly yellowish-brown tint. Internally some are uniformly white, but for a few brown smears at the apex; others have the spatula (which is never very distinct) tinged with deep chestnut, or blotched with black, or with a bluish reflex. The interior may be horn-coloured, with an indistinct ring of white or greenish-blue between it and the spatula, or bluish with smears of brown. The margin may be light brown or dark brown or black or purple, with white sulci at the ribs. There may be bluish radii from summit to border. The ribs may be very prickly, with erect scales, or only rugose. The interstitial riblets may vary in the same shell from one to six, and in different individuals there may be only one or as many as six in each.

Patella hepatica, Pritchard and Gatliff.

Patella hepatica, Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), pt. 3, p. 194.

Acmæa striata, Pilsbry., (*non* Quoy and Gaimard), Man. Conch., vol. xiii., p. 47, pl. xxxv., figs. 27, 28, 29.

Taken dead on beach at Port MacDonnell.

Obs.—The last three species resemble one another, and differ from the *P. tramoserica* series in being crenulated along the inner margin. I found all three at Port MacDonnell; *P. aculeata* alive on the rocks, *P. ustulata* and *P. hepatica* on the beach. But I found forms intermediate between them, so that it became impossible to say whether they should be placed in one species or the other. In fact, I had grouped all together as *P. ustulata*, and made two varieties—at the one extreme with marked ridges, which were

prickly, and at the other with only small uniform crowded ribs. Later, these were found to be on the one hand more prickly and costate than specimens of *P. aculeata*, from New South Wales, and on the other to be identical with *P. hepatica*, from Victoria. I feel confident that a larger series will unite these three as conspecific, and they will be called *P ustulata*, Reeve.

Patella chapmani, Ten.-Woods.

Patella chapmani, Ten.-Woods, Proc. Roy. Soc., Tasm., 1876 for 1875, p. 157; Pilsbry., in Tryon, Man. Conch., 1891, vol. xiii., p. 101; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903 vol. xv. (n. s.), p. 193; Tate and May, Proc. Linn. Soc., 1901, vol. xxvi., p. 410.

Acmæa alba, Ten.-Woods, Proc. Roy. Soc., Tasm., 1877 for 1876, pp. 155, 156; Pilsbry., 1891, *op. cit.*, p. 54, pl. xlii., figs. 76-78; Tate and May, *loc. cit.;* Pritchard and Gatliff, *loc. cit*

Tate and May, *loc. cit.*, identify it with *P. stellaeformis*, Rve., Conch. Icon., f. 48. It is rare in S. Aust., but has been taken at Port MacDonnell (W. T. Bednall) and at Royston Head, Yorke Peninsula.

Genus Nacella, Schumacher.

Nacella parva, Angas.

Nacella parva, Angas, Proc. Zool. Soc., 1878, pl. liv., f. 12; "*Hab.*, Holdfast Bay and Aldinga Bay; parasitic on seaweed;" Adcock, Handlist of Aquatic Moll. 1893, p. 9, No. 393. It has been found as far east as Aldinga Bay, and as far west as Fowler's Bay. It appears to be of limited *habitat*, for Pritchard and Gatliff do not record it in their Victorian catalogue, nor Tate and May in their Tasmanian Census. I have not seen it from W. Australia.

Nacella compressa, *spec. nov.* Pl. viii., figs. 11, 12.

Shell narrowly elongate, elliptical; sides straight, parallel; ends round. Apex overhangs one end (which is concave vertically, and slightly narrower than the other), barely oblique slightly to the left of the midline. Dorsum convex, rising higher than the nucleus. Sides nearly vertical; base flat, margin simple. Concentric growth lines, and microscopic radial scratchings.

Dim.—Length, 5 mm.; breadth, 1·6 mm.; height, 1·25 mm.

Locality.—Investigator Strait, 15 fathoms, 6 dead.

Diagnosis.—Its shape separates it from *N. parva*, Angas, which measures 5·6 mm. by 2·8, and is therefore twice as wide for the same length. It may be only a variant of this species, cramped by residence on very narrow zostera or other growth.

Nacella crebristriata, Verco.

Trans. Roy. Soc., S. Aust., 1904, vol. xxviii., p. 144, pl. xxvi., figs. 20, 21.

The only habitat given was South Australia, but Tate's shells almost certainly came from Moonta Bay, as they were in a tube with others which I have described in this paper as *Scutellina alboradiata*, sp. nov., and which have been obtained in numbers at Moonta Bay by Mr. Zietz.

Nacella stowæ, *spec. nov.* Pl. x., figs. 4, 5.

Shell oval, thin, translucent, narrower in front, about half as wide as long, its height less than half its greatest width. Apex at the anterior sixth, simple, non-spiral. Numerous fine diverging axial striæ, with crowded minute sublenticular accremental striæ. Apex red; sixteen equidistant, pink, increasing radial rays, each composed of two to four lines; white opaque blotches, irregular in shape behind the apex, somewhat concentrically arranged; a central linear one just behind the apex. Spatula snaped as in *Patella;* fairly distinct, margined in front opaque white; behind this pinkish-brown, which extends backwards in two short diverging flames; between these a white opaque flame extends back from the apex of the shell. The rest of the spatula is mottled with wavy, opaque, white blotches.

Dim.—Length, 5·3 mm.; breadth, 3·7 mm.; height, 2·1 mm.

Locality.—Shell sand, beach, Port MacDonnell, and King's Point, Encounter Bay (Miss Stow).

Family ACMÆIDÆ.

Genus Acmæa, Eschscholtz.

Acmæa octoradiata, Hutton.

Patella octoradiata, Hutton, Cat. Marine Moll. of New Zealand, 1873, p. 44; *Acmæa saccharina, Linné, var. perplexa*, Pilsbry., Tryon's Man. Conch., 1891, vol. xiii., p. 50, pl. xxxvi., figs. 69, 70, 71; *Acmæa perplexa, Pilsbry.*, Taylor, Nautilus, 1892, vol. vi., p. 89; *Acmæa saccharina, Linné*, Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., pt. 3, p. 411; *Patella perplexa, Pilsbry.*, Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv., pt. 2, p. 194; *Acmæa octoradiata, Hutton*, Hedley, Proc. Linn. Soc., N.S.W., 1904, pt. 1, p. 188.

This is very rare in South Australia. It has been found on the beach at Wallaroo Bay and at Port MacDonnell.

Acmæa alticostata, Angas.

Patella alticostata, Angas, Proc. Zool. Soc., Lond., 1865, p. 56, pl. ii., f. 11; type locality, Port Lincoln; Hedley, Proc. Linn. Soc., N.S.W., 1904, pt. 1, p. 189.

From Port MacDonnell, along the whole coastline to Western Australia, and recorded from Tasmania, Victoria, and New South Wales.

Obs—Angas, in Proc. Zool. Soc., 1867, p. 221, made his name a synonym of *Patella costata (Lottia costata)*, Sowerby, Moll., Beechey's Voy., t. 39, f. 2, 1839; and as *Acmæa costata*, Sow., his shell is referred to by Ten.-Woods, Proc. Roy. Soc. Tasm., 1877, p. 50, and *op. cit.*, 1878, pp. 44 and 45; Pilsbry, in Tryon's Man. Conch., vol. xiii., p. 51, pl. xxxvi., f. 72-77; Adcock, Handlist of Aquatic Moll., S. Aust., 1893, p. 9, No. 394; Tate and May, Proc. Linn. Soc., N.S. Wales, 1901, vol. xxvi., part 3, p. 411; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n.s.), part 2, p. 194. But Hedley affirms them to be different species, *loc. cit.*

It may reach the size of 2 in. long, 1·7 broad, and ·8 high. It is nearly always narrower anteriorly, sometimes markedly so; very rarely it is quite elliptical. The height may be ·7 in. in a shell only 1·1 in. long, or only ·5 in 1·6, just twice as high proportionally. The shape may be acutely conical and straight-sided or flat-topped and convex-sided. The ribs vary from 14 to 27, increasing by intercalation with age. The interstices may be prettily ornamented with close-set fuscous crescentic lines, convex towards the apex; these may climb the sides of the ribs, or cross them; they are more marked in beach-worn shells. The interior may be wholly white, including the margin; even the spatula may be scarcely tinted or distinguishable. The latter may be blackish-brown, or of any lighter tint of brown, its anterior and posterior parts being usually much darker. The margin may have no colouration, or very dark spots may mark all or some of the interspaces between the ribs. In addition to these a light-brown band may completely margin the inner border, or this may be found alone of any darker tint up to a purplish black. More or less rusty colouration may be found between the spatula and the margin, generally in blotches.

Acmæa marmorata, Ten.-Woods.

Proc. Roy. Soc., Tasm., 1876 for 1875, pp. 156, 157, and 1877 for 1876, p. 53; Pilsbry., Tryon, Man. Conch., 1891, vol. xiii., p. 52, pl. xlii., figs. 66-70; Adcock, Handlist Aquatic Moll., S. Aust., 1893, p. 9, No. 399; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., pt. 3, p. 412; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), pt. 2, p. 197.

Patella latistrigata, Angas, Proc. Zool. Soc., Lond., 1865, p. 154, and p. 186, No. 196A; Adcock, *loc. cit.*, 1893; Pritchard and Gatliff, *loc. cit.; Helcioniscus latistrigata*, *Angas*, Pilsbry., *loc. cit.*, p. 143.

Locality.—From Port MacDonnell to Port Victoria, Spencer Gulf.

Obs.—My largest individual from Port MacDonnell measures 24 mm. long, 22·5 wide, and 10 high. The alti-

tude varies very greatly from 3·5 mm. in a shell 17 mm. long to 8·5 mm. in one 18 mm. long. When on the rocks they may be so rough and acutely costate as to be mistaken for *A. alticostata*, Angas. Usually with a flat base, it may rest on its ends, with the sides of the border much raised. As variations from the description by Ten.-Woods, the spatula may be white, with some brown clouding in its centre, the interior of the shell being a light brown, or the spatula may be black and the rest of the interior white except for black articulations of the border. The most constant feature in the ornament is the dark dotting of the spatula, but in the pallid examples this is very slight.

Adcock makes *P. gealei*, Angas, a synonym, and Pritchard and Gatliff give it priority, and *A. marmorata* as a synonym: but Angas's shell is a distinct species. *P. latistrigata*, Angas, from Aldinga, is a half-grown example, with broad radial stripes.

Acmæa calamus, Crosse and Fischer.

Patella calamus, Crs. and F., Journ. de Conch., 1864, p. 348; 1865, p. 42, pl. iii., figs. 7, 8; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., pt. 3, p. 412; *Acmæa calamus, Crs. and F.*, Angas, Proc. Zool. Soc., Lond., 1865, p. 186, No. 200; Pilsbry., Tryon, Man. Conch., 1891, vol. xiii., p. 54, pl. xxxvii., figs. 3, 4; Adcock, Handlist Aquatic Moll., S. Aust., 1893, p. 9, No. 395; Pritchard and Gatliff, Proc. Roy. Soc., Viet., 1903, vol. xv. (n. s.), pt. 2, p. 197.

Locality of type, St. Vincent Gulf, South Australia. I have taken it at Port MacDonnell, and dredged it from Backstairs Passage to Spencer Gulf, alive, at all depths from 5 to 17 fathoms. Most abundant in the shallower water.

Tate in Trans. Roy. Soc., S. Aust., May, 1897, thought it would prove to be a synonym of *Acmæa conoidea*, Quoy and Gaimard, and this suspicion seems to have been confirmed, as he lists it thus in his Tasmanian Census in 1901. He speaks of *A. conoidea*, in 1897, as though he had seen Quoy's type, and as having a circular aperture and five radial threads. But Quoy seems to have only had one shell collected at King George's Sound. This Deshayes had not seen (Anim. S. Vert., 2nd edit., vol. vii., p. 551), and Quoy does not describe it as having any radial threads, but as being "obtuse and rounded at the apex": this *A. calamus* never is, either alive or dead or rolled.

The dimensions given by Crosse are 12·5 mm. by 10 by 6, but they reach 16·5 by 14 by 7·5. The shell may be wholly white within and without, or the apical part may be white and the rest ornamented, either with tiny brown spots, more or less abundantly and irregularly scattered over the surface,

or only as regular dots around the inner margin, or as short radial brown lines at the internal periphery, or as a continuous brown border. Some are uniformly chestnut brown. One form has abundant colour-marking, which may begin at the apex as six to eight rays, tending to break up into tessellations as they widen. This variety is often slightly polygonal instead of round, the angles being in the white rays; but it grades into the ordinary form.

Acmæa flammea, Quoy and Gaimard.

Patelloida flammea, Quoy and Gaimard, Voy. Astrolabe, Zool., vol. iii., 1834, p. 354, pl. lxxi., figs. 15 to 24; Lamarck, Anim. s. Vert. (2nd edition, Deshayes, etc.), vol. vii., p. 552, 1836; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., pt. 3, p. 411; Ten.-Woods, Proc. Roy. Soc., Tasm., 1877 for 1876, p. 51.

Acmæa flammea, Quoy and G., Pilsbry., Tryon, Man. Conch., 1891, vol. xiii., p. 57, pl. xxxvii., figs. 78-83; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), pt. 2, p. 196.

Acmæa crucis, Ten.-Woods, Proc. Roy. Soc., Tasm., 1877 for 1876, p. 52; and 1878 for 1877, p. 53; Pilsbry., *op. cit.*, p. 58, pl. xxxvii., figs. 12, 13, and 17, 19; Adcock, Handlist Aquatic Moll., S. Aust., 1893, p. 9, No. 400; Tate and May, *loc. cit.*, p. 411; Pritchard and Gatliff, *loc. cit.*, p. 196.

Patella jacksoniensis, Reeve, Conch. Icon., vol. viii., 1855, pl. xxxix., figs. 127, *a*, and *b;* Tate and May, *loc. cit.*, p. 412; Pritchard and Gatliff, *loc. cit.*, p. 196; *Tectura jacksoniensis, Reeve,* Pilsbry., *loc. cit.*, p. 58, pl. xlii., figs. 71-75, and *var mixta, Reeve, loc. cit.* pl. xxxv., figs. 32, 33.

Patella gealei, Angas, Proc. Zool. Soc., Lond., 1865, p. 57 and p. 186, No. 198; not Adcock, *loc. cit.*, p. 9, No. 399; *Acmæa gealei. Angas,* Tate and May, *loc. cit.*, p. 412; not Pritchard and Gatliff, *loc. cit.*, p. 197.

Patella mixta, Reeve, Conch. Icon., 1855, vol. viii., pl. xxxix., figs. 129, *a* and *b;* Pritchard and Gatliff, *loc. cit.*, p. 196.

The type locality of *A. flammea,* Q. and G., is Hobart-town, and the type dimensions are small, 5 lines by 4 by 2½ high.

The type locality of *A. crucis,* Ten.-Woods, is Tasmania, and its dimensions are 31 mm. by 31 by 19 high. Ten.-Woods described this as a distinct species, but Tate and May and Pritchard and Gatliff unite them.

Ten.-Woods refers to *Patella cruciata,* Linné, as distinct from his *A. crucis,* because the former has "a white cross on a brown ground," instead of a brown cross on a white ground, and Pritchard and Gatliff agree. But Tate and May unite them, and make *A. cruciata,* Lin., the specific name, and the other two synonyms. I keep them distinct. Ten.-Woods also leaned to the identity of *A. flammea,* Quoy and Gaimard, and *A. subundulata,* Angas, and Pritchard and Gatliff unite them. Shells collected by me and identified by Angas's type in the British Museum have not been yet graded into Quoy's species, and are regarded as distinct.

A. jacksoniensis, Reeve (type locality, Port Jackson), is represented in Tate's collection of South Australian shells, but I am unable to separate them from *A. flammea*, Quoy and Gaimard, and agree with Pritchard and Gatliff, who unite them. The type locality of *P. mirta*, Reeve, is Port Phillip, Victoria. Tate and May make *jacksoniensis*, Reeve, a synonym of *A. gealei*, Angas, as a distinct species, owing to the pre-occupation of Reeve's name by Lesson. The two type shells of *P. gealei*, in the British Museum, from South Australia, presented by Mr. G. F. Angas, are 24 mm. by 21, regularly roundly oval in the base, with an almost perfectly regular thin margin, with no radial ribbing, nor any radiating dark colour bands. I think they are large albino variants of *A. crucis*, Ten.-Woods.

A. gealei, Angas, was formerly regarded in South Australia as a synonym of *A. marmorata*, Ten.-Woods, No. 399, Adcock's Handlist; and Pritchard and Gatliff gave it priority and made the latter the synonym; but examination of the type shows absolute non-identity.

The shell is certainly very variable. One form has numerous well-marked radial riblets, and a sharp apex, and may be regarded as the typical *A. flammea*, Quoy. A second has no radial riblets, or only obsolete, is a larger shell, and is the typical *A. crucis*, Ten.-Woods. A third has comparatively few radial costæ, which are broad and rude, and somewhat corrugate the surface, and is the *Patella jacksoniensis*, Reeve. A fourth is very like the second, but differs in having no radial colour markings, or radial ribs, and is the *A. gealei*, Angas. But all four can be graded into one another in continuous series. The comparative height varies, some shells being quite conical, and others very flat. The colour ornament may consist solely of the dark spatula, or a distinct broad Maltese cross may be present, or each arm may be broken up into two or more brown lines, or brown lines may intervene between them, or only brown radii may occur, or the ornament may be a brown-and-white tessellation or reticulation at the apex only, or all over the shell, or combined with the cross. The inner border may be wholly white, or have a brown border, or be articulated brown and white, or show only the four broad ends of the brown cross. Among all the specimens collected I have not found one coloured like *A. cruciata*, Linn., with the white rays at the centre of the front and back and sides, and the brown between.

Acmæa conoidea, Quoy and Gaimard.

Patelloida conoidea, Q. and G., Voy. Astrolabe, Zool., vol. iii., 1834, p. 355, pl. lxxi., figs. 5 to 7; Lamarck, Anim. s. Vert. (2nd edition, Deshayes, etc.), vol. vii., p. 551.

Acmæa conoidea, Q. and G., Angas, Proc. Zool Soc., Lond., 1865, p. 186, No. 199; Pilsbry., Tryon, Man. Conch., vol. xiii., 1891, p. 53, pl. xxxvii., figs. 84, 85; Adcock, Handlist Aquatic Moll., S. Aust., 1893, p. 9, No. 396; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., pt. 3, p. 412; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), pt. 2, p. 195.

Type locality, King George's Sound, Western Australia, taken alive, only one example.

Tate regarded it as conspecific with *A. calamus,* Crosse and Fischer, and made this a synonym, but this is a mistake.

Port MacDonnell, on rocks above low water.

Acmæa subundulata, Angas.

Proc. Zool. Soc., Lond., 1865, p. 155, and p. 186, No. 202; Ten.-Woods, Proc. Roy. Soc., Tasm., 1877 for 1876, p. 52; Adcock, Handlist Aquatic Moll., S. Aust., 1893, p. 9, No. 398; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), pt. 2, p. 196.

Tectura subundulata, Angas, P.Z.S., 1867, p. 220, No. 218.

Angas's type locality was Port Lincoln. I have dredged several alive at seven fathoms in St. Vincent Gulf; in Hardwicke Bay, three miles off shore; and in Eastern Cove, Kangaroo Island, and collected it on the ocean beach, Kangaroo Island, and at Normanville. These have been identified from Angas's types in the British Museum by me.

Ten.-Woods, *loc. cit.,* was doubtful if it would not be found identical with *A. flammea,* Quoy, and Pritchard and Gatliff, *loc. cit.,* record it as a synonym of Quoy's species; but, after comparison with a large number and various forms of this variable shell, I cannot recognize it as conspecific.

(?) Acmæa punctata, Quoy and Gaimard.

Patelloida punctata, Q. and G., Voy. Astrolabe, Zool., vol. iii., p. 365, pl. lxxi., figs. 40, 42.

The type locality is King George's Sound, Western Australia. I have two shells dredged, of almost the same size, 6 mm. by 4 by 2·25, with the apex carried well forward, and slightly antecurved, exceedingly finely closely radially striated under the lens, the base level, inner margin smooth. White or yellowish externally, with two circles of light-brown spots, about 9 in a circle. Internally white; one shows the spatula distinctly in light brown. Quoy describes his shell as *smooth,* and figures it with *three* rows of spots.

It differs from a young *A. calamus,* Crosse and Fischer, in being less round, with its apex more excentric and ante-

curved, and in having much finer and more crowded striæ. It differs from *A. subundulata*, Angas, in being less elevated, less orbicular, with a sharper and more antecurved apex, and in its colour.

Acmæa septiformis, Quoy and Gaimard.

Patelloida septiformis, Quoy and Gaimard, Voy. Astrolabe, Zool., 1834, vol. iii., p. 362, pl. lxxi., figs. 43, 44; Lamarck, Anim. s. Vert. (2nd edition, Deshayes, etc.), 1836, vol. vii., p. 550; *Tectura septiformis*, *Q. and G.*, Angas, Proc. Zool. Soc., Lond., 1867, p. 220, No. 219; *Acmæa septiformis*, *Q. and G.*, Ten.-Woods, Proc. Roy. Soc., Tasm., 1877, p. 50; Pilsbry., Tryon, Man. Conch., vol. xiii., 1891, p. 55, pl. xxxvii., figs. 93, 94; Adcock, Handlist Aquatic Moll. S. Aust., 1893, p. 9, No. 397; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., p. 412; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903, vol. xv. (n. s.), pt. 2, p. 195.

A. scabrilirata, Angas, Proc. Zool. Soc., 1865, p. 154, and p. 186, No. 201: Pilsbry., Tryon, Man. Conch., 1891, vol. xiii. p. 56; Pritchard and Gatliff, *lot. cit.*

A. petterdi, Ten.-Woods, Proc. Roy. Soc., Tasm., 1877, p. 155; Pilsbry., *op. cit.*, p. 54; Tate and May, *loc. cit.;* Pritchard and Gatliff, *loc. cit.*

Obs.—Tate and May say *A. petterdi* is the senile form.

The shell varies in altitude from 18 mm. long, and 4·5 mm. high, to 14 mm. long and 6 mm. high. Some have a cap occupying up to one-third or one-fourth of their size, with comparatively steep sides, with an abrupt assumption of the ordinary depressed shape, looking like one *acmæa* mounted on another. The base is in some uneven, resting on the front and back edges possibly because their roost was not flat. The radial liræ may be marked from apex to base, and numerous, or very few, or absent, even when not rolled or eroded. The surface may be uniformly horn-coloured, or white, with radial black-brown widening bands, or with reticulated or roundish tessellated markings. The inner margin may be articulated brown and white, or have a uniform brown margin or be wholly white. The interior may be whitish, opaque glistening white, bluish-white, or with the outer colour showing through. The spatula may be dark chestnut-brown and very distinct, or almost invisible.

The surface is generally in very good condition, but some are markedly pitted with round shallow holes, especially about the summit, evidently due to boring by molluscs, and not to erosion.

Locality.—From Port MacDonnell to Fowler's Bay; rather common.

Acmæa cantharus, Reeve.

Patella cantharus, Reeve, Conch. Icon., vol. viii., 1855, pl. xl., f. 131; Pritchard and Gatliff, Proc. Roy. Soc., Vict., 1903,

vol. xv. (n. s.), pt. 2, p. 195; *Acmæa cantharus*, *Reeve*, Pilsbry., Tryon, Man. Conch., 1891, vol. xiii., p. 55, pl. xxxvii., figs. 1, 2; Tate and May, Proc. Linn. Soc., N.S.W., 1901, vol. xxvi., p. 412.

The type locality is New Zealand. Tate and May list it as a distinct species. Pritchard and Gatliff cite it as a synonym of *A. septiformis*, Quoy and Gaimard. A shell from Port MacDonnell, collected in numbers, is probably Reeve's shell. *A. septiformis*, Quoy and Gaimard, is also abundant there. The two forms may run into each other, but the intermediate grades have not been taken. It is larger, much less depressed, narrower anteriorly, with the apex much nearer the front margin. It is very greatly and roughly eroded, and does not show any radial striæ on the uneroded part. The colouration consists of radial brown or back stripes, varying in number and width. Internally they are very dark, a blotchy brown or a uniform blackish brown, lighter or whitish at the summit. The margin is articulated brown and white. The muscle scar is very plain as a white horseshoe, and here the shell is translucent, especially at the anterior part. Possibly they may be senile examples of *A. septiformis*, though their marked erosion contrasts strongly with the usually well-preserved surface of these.

Family FISSURELLIDÆ.

Genus Emarginula, Lamarck.

Emarginula superba, Hedley.

Records of the Aust. Mus., 1906, vol. vi., pt. 3, p. 216, pl. xxxvii., figs. 7, 8; type locality, 250 fathoms, east of Port Jackson.

My specimens have been identified by Mr. Hedley from his type. His shell was bleachd, so to his description the following may be added:—Colour light pinkish-brown, deepest over the expanded posterior surface, gradually fading anteriorly towards the slit. It is deeper in concentric rings, which leave blotches on the bounding lamina of the slit fasciole; nine are counted in the lower two-thirds. Alternate primary ribs are white from apex to margin, and are separated by one primary and two secondary ribs, which are coloured. The anterior four of these white rays on each side of the slit are separated only by the one rib, the secondaries being absent. The colouring of the shell confirms the propriety of the name "*superba*."

Individuals vary. Mr. Hedley's figure is almost uniformly elliptical. Some South Australian examples are much expanded posteriorly, being broadest on a level with the apex, and thence are attenuated anteriorly. These are also much flatter towards the margin posteriorly than the type. Others are elliptical, but less flat posteriorly than the type, and

rather more compressed laterally, and have more crowded and erect imbricating concentric scales.

Locality.—90 fathoms, off Cape Jaffa, 10 : 130 fathoms, 17 ; 300 fathoms, 1 ; 100 fathoms, off Beachport, 6 : 110 fathoms, 3 ; 150 fathoms, 3 ; 200 fathoms, 1. Some were quite recent, many were broken, all were dead.

Family SCUTELLINIDÆ, Dall.

Genus SCUTELLINA, Gray.

Scutellina calva, *spec. n v.* Pl. viii., figs. 9, 10.

Shell minute, thin, conical, white ; apex nearly central, directed away from the opening of the muscle scar ; anterior slope uniformly convex ; posterior concave, just below the apex, then barely convexly sloping to the margin. Summit smooth, but for some accremental lines, then with crowded, well-marked axial striæ, distinctly granulated with concentric striæ. Base oval, margin level and simple.

Dim.—Height, 2 mm. ; major diam., 2·8 mm. ; minor diam., 1·8 mm.

Locality.—300 fathoms, off Cape Jaffa, 31 examples, dead ; 130 fathoms, 9 dead.

Diagnosis from *Helcioniscus illibrata*, Verco.—It is less solid, has a curved apex, flat base, axial liræ, no colour markings.

Obs.—I have called this little shell provisionally a *Scutellina*, because its apex is directed away from the opening of the muscle-scar ; though its summit is nearly central. Its specific name indicates its bald apex.

Scutellina alboradiata, *spec. nov.* Pl. viii., figs. 1, 2.

Shell minute, thin, depressed conic. Apex simple, subcentral, slightly anterior, directed slightly away from the opening of the muscle-scar. Base level, oval, somewhat narrowed anteriorly. About eighteen very low, rounded, scarcely perceptible ribs or radial undulations, and microscopic accremental striæ. Internal surface radially scratched. The ribs are ornamented with opaque white radii, rather wider than the diaphanous interspaces.

Dim.—Height, 2·2 mm. ; maj. diam., 3·3 mm. ; min. diam., 2·4 mm.

Locality.—Moonta Bay, Spencer Gulf ; collected in numbers in shell sand by Mr. A. Zietz. Several individuals were in Tate's collection, labelled "*Scutellina*, sp., S.A.," in the same tube as shells which I lately described as *Nacella crebristriata*. So probably the locality of *N. crebristriata* is also Moonta Bay.

Diagnosis.—From *Nacella crebristriata*, Verco; it is less solid, more rounded, has its apex less excentric, and fewer and less valid ribs. From *Scutellina calva*, it is narrowed anteriorly, has no crowded axial liræ, is white-ribbed. From *Cocculina tasmanica*, Tate and May, its apex is more central and leans backwards.

Obs.—In some examples the opaque radii are much narrower, or a wide and a narrow one may alternate. The opaque lines are not continuous, but composed of arrow-heads, with their points towards the margin, or of zig-zags, or dots.

Its generic location is somewhat dubious.

Family TROCHIDÆ.

Genus Basilissa, Watson.

Basilissa radialis, Tate; var. **bilix**, Hedley, sp.

Pl. x., figs. 1, 2, 3.

Seguenzia radialis, Tate, Trans. Roy. Soc., S.A., xiii.; 1890, p. 192, pl. ix., f. 6.

Astele bilix, Hedley, Records Austr. Mus., vi., pt. 2, 1905, p. 48, f. 13.

Shell depressedly conical, of seven and a quarter whorls, including a homostrophe smooth protoconch of one and a quarter whorls.

Spire somewhat gradate. In the first whorl one marked spiral rib; in the rest two becoming gradually more valid and distant. In the third whorl a secondary threadlet between these: in the fourth a threadlet between the first spiral and the upper suture; in the fifth two tertiaries, one between each spiral and the secondary threadlet. In the sixth, or body-whorl, another spiral rib appears below and nearly equal to the lower of the two spirals; it forms the periphery and the suture, and, separated from its fellow by a furrow, gives an apparent canaliculate suture. The base is flatly rounded with eight equi-distant, nearly equal, concentric rounded spiral liræ, as wide as their interspaces. The surface is cancellated by crowded narrow erect lamellæ, crossing the spirals and sinuous, but not following exactly the outline of the labrum, and ending at the outer basal lira. Crowded radial striæ cancellate and granulate the base, and extend to the lira nearest the umbilicus. Aperture obliquely quadrate, with a large posterior sinus in the outer lip, rather deeper than wide; a second at the baso-labral junction, beginning at the third spiral rib, about as deep as the infra-sutural one, and rather wider: and a third shallow and wide at the baso-columellar angle. Columella oblique, concave, expanded towards the umbilicus, trun-

cate anteriorly. Inner lip thin from columella to posterior sinus, smooth. Interior of aperture smooth. Umbilicus deep, small, margined with oblique plicate tubercles.

Dim.—Alt., 3·6 mm.; diam., 3·4 mm.

Locality.—Shell figured and described (in Dr. Verco's collection), with four others, dredged, dead, 130 fathoms, off Cape Jaffa; 300, off Cape Jaffa, seven, immature and broken, and six large and complete, one quite recent.

Obs.—This shell was figured for description as a new species, but Mr. Hedley recognized it as his *Astele bilix*, which was an immature shell, and did not plainly reveal the apertural sinuses. He suggested its location in Watson's genus *Basilissa*, as emended by Dall, in Bull. Mus. of Comp. Zool., 1889, pp. 383-385. With this it corresponds closely. One individual shows very well the nacreous central claw-like process in the labrum, somewhat inflected, to which Dall refers. It very probably belongs to the section *Ancistrobasis*, Dall, though none of my shells show the internal thickening and grooving of the outer lip; but Dall points out that this character only occurs in adult shells.

Sequenzia radialis, Tate, an Eocene fossil from Muddy Creek, the type of which is in the Tate Museum of the University of Adelaide, has the two spirals which form the canaliculate suture closer together than our recent form: it has a prominent spiral threadlet above the second spiral rib and the first spiral rib is absent: so the fossil is less gradate, and the whorls are more sloping, and have more nearly uniform spirals. The base is flatter, the perforation and its bordering tubercles are larger. Dall, however, in discussing *B. costulata*, Watson, and var. *depressa*, Dall, notes the great variability of abyssal shells in general, and of that species in particular. The same consideration probably holds good in our shell, which has therefore been made only a variety of Tate's fossil species.

One individual with a perfect aperture shows the labrum to be very irregular, owing to the projection at the border, of every spiral rib and threadlet, into a minute marginal tooth, proportional to its size as a spiral, except those which end in the depth of the two labral sinuses.

Genus Scala, Klein.

Scala nepeanensis, Gatliff.

Proc. Roy. Soc., Vict., 1906, vol. xix. (n. s.), Pt. 1, p. 1. Pl. 1, fig. 5. "Shell sand, Ocean Beach, Point Nepean."

One example has been found in dredge-siftings, depth and locality not noted, probably St. Vincent Gulf.

Family TRICHOTROPIDÆ.

Genus Lippistes, Montfort.

Lippistes separatista, Dillwyn, sp. Pl. ix., figs. 6 to 9.

Turbo helicoides, Gmelin, Syst. Nat., p. 3598, No. 109: *Turbo separatista,* Dillwyn, Conch. Cab., vol. x., p. 298, pl. clxv., figs. 1589, 1590; Cat. Recent Shells, ii., p. 867, 1817; Wood, Ind. Test., p. 151, pl. xxxii., f. 126, 1825; *Separatista chemnitzii,* A. Adams, Proc. Zool. Soc., Lond., 1850, p. 45; Tryon, Man. Conch., ix., p. 45, pl. viii., f. 70; Rep. Challenger, Zool., xv., p. 428; *Trichotropis tricarinata,* Brazier, Proc. Linn. Soc., N.S.W., 1877, i., p. 313; *Separatista separatista, Dillwyn,* Hedley, Records Aust. Mus., iv., No. 3. 1901, p. 126, pl. xvii., f. 22; *Lippistes separatista, Dillwyn,* Hedley, Proc. Linn. Soc., N.S.W., 1902, p. 24; *Trichotropis blainvilleanus,* Petit, Journ. de Conch., ii., 1851, p. 22, pl. i., f. 5; Tryon, Man. Conch., 1887, ix., p. 45, pl. viii., f. 69; *Trichotropis gabrieli,* Pritchard and Gatliff, Proc. Roy. Soc. Vict., 1889, p. 183, pl. xx., f. 7; *ibid,* 1900, vol. xiii., p. 142.

Some years ago five shells were dredged by me, all dead, one in 13½ fathoms in Investigator Straits, off Point Marsden, Kangaroo Island; two in 16-18 fathoms, Backstairs Passage, and two in deep water, exact station unrecorded.

This form was named and described by me in manuscript as a new species chiefly because its whorls were curiously polygonal, with a tubercle on the carinæ at each angle. See pl. ix., fig. 6. But in 1899 I had the opportunity at the Natural History collection of the British Museum in London. of comparing it with various species of the *Trichotropidæ,* and Mr. E. A. Smith kindly assisted me.

Lippistes helicoides, Gmelin, from the Philippine Islands, with four shells on the tablet, were identical. On the back of the tablet carrying them was the following:—"*Turbo helicoides,* Gmelin," which meant that Mr. E. A. Smith had compared these four shells with Gmelin's description and found them to correspond. Gmelin's types are unknown; possibly he described only from a figure found elsewhere. Also, "*Separatista chemnitzii,* A. Ads., P.Z.S., 1850, p. 45, types, I. Bureas, Phil., H. Cuming." This means that these shells were in Cuming's collection, were obtained from Bureas Island, in the Philippine Islands, and are the types of *S. chemnitzii,* A. Ads. Also, "Mekran coast in Coll. Melvill," signifying that shells in Melvill's collection from the Mekran coast had been compared by E. A. Smith, and found to be identical. Mine were demonstrably conspecific, and Adams's shells were found to possess the same polygonal form, with the tendency to tuberculation at the angles. There is no question about the identity of our shell with Adams's species, and as this has been made a synonym of Dillwyn's species, Dillwyn's name should be accepted by us.

Watson, in the "Challenger" Reports, xv., p. 429, agrees with Beck in the identity of *S. chemnitzii*, A. Adams, and *T. blainvilleanus*, Petit. Mr. Gatliff acknowledges the identity of his species with Petit's. He has kindly allowed me to compare his type with my South Australian examples, and see their identity.

Mr. Gatliff also provided me with a living individual dredged in five fathoms, off the shores of Victoria. It is covered with an epidermis, extremely thin on the smallest whorls (possibly worn away), but well marked on the later. It is simple on the tabulated slope, on the base and in the umbilicus only varied by minute axial lines. On the three carinæ it is elevated into low spiral laminæ, which are connected by more marked axial laminæ. At intervals these are large, and projected forwards to form imbricating flounces, while between them may be 3 to 7 of the smaller ones. These flounces correspond with the tubercles at the angles of the polygonal whorls. They are figured in pl. ix., fig. 7, but very imperfectly, owing to its drying up.

From his living example I was able to extract the radula. This is very similar to that of *Trichotropis borealis*, Broderip, as figured in Fischer's Manuel de Conch., 1887, p. 689. It has a rachidian tooth with a multicuspidate margin, rather more finely serrated, a large transversely quadrangular lateral with a multicuspidate border and two simple arcuate sharp marginals. (Pl. ix., fig. 9.)

The operculum is horny, subtrigonal, with an apical nucleus (pl. ix., fig. 8), and fairly closely resembles that of *T. borealis*, Brod. The affinity of our southern subtropical form with that of the arctic form is thus demonstrated.

Lippistes meridionalis, *spec. nov.* Pl. ix., figs. 1, 2.

Shell turbinate solid, whorls five, rapidly increasing. Protoconch, one and a half whorls, convex, smooth, but for four equal and equi-distant liræ. It ends abruptly with a distinct border, not thickened or reflected. The spire whorl begins with a not quite smooth area, from which the granular spiral liræ gradually arise. Spire whorls are tricarinate. In the first the central carina is more prominent, in the second it is level with the others, in the third it is less prominent. Sloping scarcely convex from upper suture to posterior carina, vertical from this to lower suture. On the slope are four equidistant spiral liræ, one-third or one-fourth the width of their interspaces, increasing in size with the whorls. Base somewhat concave. A peripheral carina, less marked than those on the spire, forms the suture. Below it are four broad spiral bands, wider than their interspaces, and microscopically

spirally incurved. Crowded axial lirellæ, about as wide as their interspaces cross the carinæ: every sixth or seventh one is strong; the next two or three are finer, and those following gradually increase. At the intersections are minute tubercles, which at intervals are comparatively large. The basal axials are less unequal. Aperture quadrangularly hemispherical, produced at the baso-columellar junction. Outer lip corrugated by the carinæ. Columella concave, with a tooth-like prominence below. Inner lip valid, applied to the base on its upper half. Perforation well marked, somewhat rimate.

Dim.—Alt., 3·6 mm.; diam., 2·9 mm.: aperture, 2·1 mm. by 1·6 mm.

Locality.—Type, 40 fathoms, off Beachport, dead, with two co-types: 110 fathoms, 2 dead.

Diagnosis.—From *Lippistes separatista*, Dillwyn. It is much smaller, and more solid, the protoconch is much smaller: the whorls increase less rapidly, have three liræ on the spire and four on the body-whorl, are lirated on the infra-sutural slope instead of smooth, have no polygonal shape, the base is lirated instead of smooth, axial lirellæ tuberculate the carinæ and continue to the columella, and the umbilicus is rimate.

Genus Seguenzia, Jeffreys.

Seguenzia polita, Verco, *spec. nov.* Pl. ix., figs. 3, 4, 5.

Shell white, smooth, glistening, turbinate, of six whorls. Protoconch one and a quarter whorls, homostrophe, smooth, round. Spire gradate, flatly concave, from simple suture (with a linear furrow) to central angulation, which is scarcely keeled; then sloping barely concave to the lower suture, first two whorls with fine numerous radial striæ from suture to angle, becoming gradually obsolete as microscopic accremental lines on the later whorls. Body-whorl with a central carina, which forms the suture; a second somewhat smaller some distance anterior, somewhat concave between; a third smaller and less distant; then six concentric liræ to the perforation, which is small and rimate. Aperture subquadrate; outer lip with a deep, narrow sinus at the suture, and a deep, wide notch at the junction of the basal and outer lip, a somewhat shallower one between them, and a smaller notch at the junction of the basal lip and the columella, which is truncated so as to form a blunt tooth.

The spiral angulation ends at the deepest part of the posterior sinus: the peripheral carina in the deepest part of the central sinus; the second carina forms the posterior boundary of the baso-lateral notch, whose deepest part lies between the third carina and the first basal lira. The columella is concave, smooth, thick, polished, and expand-

ed, so as nearly to cover the perforation. The inner lip, applied to the base, extends from the columella to the suture, and is smooth.

Dim.—Height, 3·5 mm.; greatest diameter, 2·4 mm.

Locality.—300 fathoms, off Cape Jaffa, 10 dead.

Diagnosis.—It approaches *S. elegans*, Jeffreys, Proc. Zool. Soc., 1876, p. 200; Tryon, Man. Conch., vol. ix., p. 47, pl. viii., fig. 75; but is distinct in having the sutural sinus with a much smaller lamina between it and the suture, the sloping part of the spire-whorls longer, a different relation of the angulation and carinæ to sinus, and a less production of the baso-labral angle. It is also very similar to *Seguenzia monocingulata*, Seguenza, as figured by Dall, in Bulletin 37, 1889, of the United States Nat. Hist. Mus., p. 142, pl. lxii., figs. 88-89; but the sinuses in the aperture are different. They differ greatly, however, in the two figures given, so this species may prove eventually only a variety.

Genus Siphonaria, Sowerby.

Siphonaria stowæ, *spec. nov.* Pl. viii., figs. 3 to 8.

Shell small, moderately solid, oval, depressed. Apex subterminal one-eighth distant from posterior end, slightly to the left of the mid-line, oblique, inclining backwards from the central line, pointed and slightly projecting posteriorly. Posterior end nearly vertical, slightly concave. Dorsum subconvex, more rapidly descending anteriorly. Left margin straightly convex: right more rounded, faintly bulged at the site of the siphon, just in front of the middle point. Numerous subdistant rather rude ribs, equal in width to the interspaces, multiplying by frequent intercalations; rough, irregular growth lines. Interior smooth, margin invalidly crenulated. Ornament, ribs opaque white; dark brown specks, lines, and blotches, chiefly intercostal, plainer on the right side: internally light horn tint, a chestnut horseshoe around the posterior third, and broken blotches on each side of the siphon.

Dim.—Length, 7·5 mm.; breadth, 5·9 mm.; height, 3·25 mm. The radula contains about 94 rows of teeth, each consisting of a central denticle, with about 22 laterals on either side. The rachidian is narrow, with a small cusp tending to be bilobed. The laterals have large simple cusps, and these as well as the teeth grow gradually smaller the further they are from the centre. (Figs. 6, 7, 8.)

Hab. Pondolowie Bay, in Spencer Gulf, on rocks above tide mark; 9 examples, alive. Fry in shell sand, King's Point, Encounter Bay (Miss Stow).

Obs.—The fry reveal a spiral nucleus of two full turns, dextral, smooth, and horn-coloured. In some, especially the smaller, the ribs are more distinct and the sculpture less rugged. Some have much more brown colouring, either in the intercostal spaces or in the internal horseshoe or both. One has the enlarged extremities of the horseshoe muscle-scar plainly painted. We have no other *Siphonaria* with its apex so near the posterior end. The largest example is 9·4 mm. by 6·5. I have named the species after Miss Stow, who collected the immature examples.

EXPLANATION OF PLATES.

Plate VIII.

Fig. 1. *Scutellina alboradiata*, Verco.—Ventral view.
,, 2. ,, ,, ,, Side view.
,, 3. *Siphonaria stowæ*, Verco. — Dorsal view.
,, 4. ,, ,, ,, Ventral view.
,, 5. ,, ,, ,, Side view.
,, 6 ,, ,, ,, Radula.
,, 7. ,, ,, ,, Radula, rachidian, and first lateral from the other half.
,, 8. ,, ,, ,, Fifth lateral, side view.
,, 9. *Scutellina calva*, Verco.—Ventral view!
,, 10. ,, ,, ,, Side view!
,, 11. *Nacella compressa*, Verco.—Side view.
,, 12. ,, ,, ,, Ventral view.

Plate IX.

Fig. 1. *Lippistes meridionalis*, Verco.
,, 2. ,, ,, ,, Protoconch.
,, 3. *Seguenzia polita*, Verco.
,, 4. ,, ,, ,, Lip in profile
,, 5. ,, ,, ,, Basal view.
,, 6. *Lippistes separatista*, Dillwyn.—Spire, full view.
,, 7. ,, ,, ,, With epidermis.
,, 8. ,, ,, ,, Operculum.
,, 9. ,, ,, ,, Radula.

Plate X.

Fig. 1. *Basilissa radialis*, Tate, var. *bilix*, Hedley.
,, 2. ,, ,, ,, ,, Base.
,, 3. ,, ,, ,, ,, Outer lip.
,, 4. *Nacella stowæ*, Verco.—Ventral view.
,, 5. ,, ,, ,, Side view.
,, 6. *Helcioniscus illibrata*, Verco.—Side view.
,, 7. ,, ,, ,, Ventral view.
,, 8. ,, ,, ,, Radula, front view.
,, 9. ,, ,, ,, Laterals, side view.
,, 10. ,, ,, ,, Marginal, side view.
,, 11. ,, ,, ,, A second radula, front view.
,, 12. ,, ,, ,, Laterals, side view.
,, 13. ,, ,, ,, A third radula, front view.
,, 14. ,, ,, ,, A lateral, side view.